Solicitation # NNL06146203R

Response to Questions
3-08-2006

1. Question regarding Task 2 - Analysis and Modeling - The Sample Task suggests - LS Dyna Landing Simulations - Is it acceptable to use a competing software of LS Dyna. The software in question is ABAQUS/Explicit and is equally capable of completing Landing Simulations? Further, to the best of our knowledge - ABAQUS sofware is already being used at NASA Langley for Air Bag Simulations / Landing Simulations.

> **Response**: For this project NASA is using LS DYNA for its CEV landing simulations. As discussed in Section 3.3.2 of the Sample Task Statement of Work (SOW), NASA will be using its LS DYNA landing simulations as an independent verification of the Contractor's analysis results. In order to conduct this independent verification, NASA requires the Contractor's air bag finite element models to be suitable for integration into NASA's overall LS DYNA model. This is discussed in Section 3.3.2(b) of the Sample Task SOW which requires the Contractor to submit its LS DYNA air bag model input deck that "shall include all code needed for NASA to integrate the Contractors air bag model into NASAs LS DYNA landing simulation for independent analysis verification." To our knowledge, an ABAQUS/Explicit input deck can not be directly integrated into an LS DYNA input deck and successfully implemented, therefore, ABAQUS/Explicit is not an acceptable substitute for LS DYNA for this project.

2. What is NASA's position on participation of international partners, particularly regarding test support for any future planned testing at NASA LaRC? Is such participation deemed a feasible approach?

> **Response**: Participation of international partners is subject to any applicable clauses contained in the solicitation that may prohibit such participation. NASA will not comment on the feasibility of such an approach as the particular circumstances of the partnering arrangement are not known to NASA and in any case the business decision to partner with a foreign entity is solely the responsibility of the interested offeror. However, NASA calls attention to Section L, paragraph 10 Volume II Technical Proposal Content, subparagraph e) which reads: "applicable only to Foreign offerors or US prime contractors proposing foreign subcontractors or partners: submit an Export Control Compliance Plan with milestone schedule and supporting information describing how the offeror will comply with NASA FAR Sup 1852.225-70 Export Licenses."

3. According to the Statement of Work (Appendix A, Section 4.4, page 94), the first prototype is to be delivered 60 days after Option 1 ATP, which is after the 120 day base period (six months, total). Is this delivery date a requirement or would

NASA consider an alternative schedule that trades risk against a later delivery and still be compliant?

Response: Appendix A (Sub-scale Air Bags) and Appendix B (Full-scale Air Bags) are attached to the Sample Task SOW (Exhibit B) only to be used as the basis of estimate for the rough-order-of-magnitude (ROM) costs required by Sections 3.4(d) and 3.6(d) of the Sample Task. The delivery dates specified in Section 4 of Appendices A and B are intended only to provide schedule guidance to the Contractor in developing the ROM estimates. If, in developing the ROM estimates, the Contractor indicates that the proposed delivery dates are unreasonable or introduce unnecessary risk, then NASA will take those concerns into consideration when and if NASA issues tasks for the work associated with Appendix A and/or B.

Offeror's shall take note that the scope of work defined in Appendices A and B may or may not eventually be implemented, and that the work described in Appendices A and B is not to be included as part of the Offeror's cost proposal for the Sample Task. The Offeror's cost proposal, which is subject to the $250,000 not-to-exceed value, shall only be in response to the requirements specified in the Exhibit B Sample Task.

4. The Solicitation Appendix A, Sub Scale Airbags section of the SOW, page 85, item 10 states:

"The airbag Landing System shall be at a state of technological readiness such that a full-scale system can be designed, fabricated, and tested no later than March 1, 2007"

This statement appears inconsistent with the following:
Solicitation Appendix B Full-Scale Airbags section of the SOW, page 101
"Delivery of Production Air Bags: Within 365 calendar days after award" Dec. 13
Synopsis: "Option 2 period of performance will be approximately 365 calendar days from the day the Option is exercised, and will include the design, fabrication, delivery, and testing support of full-scale air bags for tests to be conducted at NASA/LaRC." Indications that CEV PDR and general CEV impact attenuation trade study test data and assessment must be available and CEV PDR preparations must start by September 2007.

Please specify/clarify the required completion date for full-scale airbag development and test solicitation compliance, as needed to support NASA CEV milestones such as CEV PDR.

Response: The following statement, "The airbag Landing System shall be at a state of technological readiness such that a full-scale system can be designed, fabricated, and tested no later than March 1, 2007" refers only to the technology readiness level (TRL) of the Offeror's air bag system. The statement is not intended to indicate that NASA has established a firm March

1, 2007 test date for a full-scale air bag system. Rather, the intent is to notify Offeror's that proposed air bag systems must be mature enough that they can be developed and ready for a full-scale test by March 1, 2007.